

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-30 (canceled)

31 (new) A spectral imaging system configured to provide an image of a sample, comprising:

a light source for illuminating said sample with radiation within a first band of wavelengths, wherein said first band of wavelengths excites regions within said sample causing said regions to emit radiation within a second band of wavelengths;

a filter through which the light from the source is passed prior to illuminating said sample, for removing undesired wavelengths from said light;

condensing optics through which the light from said filter is passed before illuminating said sample;

an interferometer for spectrally resolving said wavelengths within said second band of wavelengths, wherein said interferometer creates an interferogram of said sample that is superimposed on an image of said sample transmitted by said interferometer, wherein said interferometer includes:

at least two turning mirrors; and

one polarizing beam splitter;

wherein said polarizing beam splitter substantially reflects a first preferred polarization and substantially transmits a second polarization;

a detector array, wherein said sample and said interferogram of said sample are imaged on said detector array, wherein said detector array outputs a plurality of signals corresponding to an intensity at each pixel of said array; and

a processor coupled to said detector array and coupled to a monitor, said processor displaying an image of said sample on said monitor.

32. (new) The spectral imaging system of claim 31, wherein said polarizing beam splitter is a polarizing cube.

33 (new). The spectral imaging system of claim 31, wherein said first polarization is perpendicular to a plane of incidence (s-polarization).

34. (new) The spectral imaging system of claim 31 wherein said second polarization is parallel to a plane of incidence (p-polarization).

35. (new) The spectral imaging system of claim 31, wherein said at least two turning mirrors are configured to turn independently.

36. (new) The spectral imaging system of claim 31, wherein said at least two turning mirrors are coated with a dielectric to minimize effects upon said first polarization and said second polarization.

37. (new) The spectral imaging system of claim 31, further comprising a filter located upstream of the interferometer for removing scattered light from said second band of wavelengths.